COMMONWEALTH of VIRGINIA

Karen Remley, MD, MBA, FAAP
State Health Commissioner

Department of Health
P O BOX 2448
RICHMOND, VA 23218

TTY 7-1-1 OR
1-800-828-1120

Manufacturer Agreement

Memorandum of Understanding and Agreement

This Agreement, made this **18** day of **January**, 20**12**, is by and between the Commissioner of Health and **HOOT Systems, LLC**, the "Manufacturer." The Commissioner delegates implementation and acceptance of this Agreement to the Division of Onsite Sewage and Water Services (DOSWS).

The Manufacturer agrees to test and evaluate the efficacy of **HOOT Series H**, the "Treatment Device" in accordance with the evaluation protocol set forth below. The Treatment Units will be jointly selected and agreed upon by the Manufacturer and DOSWS. The Manufacturer further agrees to:

1. Test and complete an evaluation (as described in this Agreement) of a minimum 20 Treatment Units within three years of the date that this Agreement is executed. The Manufacturer must conclude the evaluation on or before **January 18, 2015**

    i. Each of the 20 Treatment Units selected for evaluation must be designed and used for a single-family residential dwelling less than 1,000 GPD, used as expected for a permanently occupied home for 12-months.

    ii. No evaluation or testing will be accepted for seasonal occupancy or seasonal rental use.

    iii. The Manufacturer will contact DOSWS as soon as practical when a viable Treatment Unit for evaluation is installed. Upon notice by the Manufacturer, DOSWS will confirm whether the Treatment Unit will be selected.

    iv. The Manufacturer will maintain an electronic database of Treatment Units selected for evaluation and report the database, along with associated influent and effluent results quarterly. The Manufacturer will retain copies of the Chain of Custody forms for sample collection, transport, and measurements and provide them to DOSWS within five days upon request.

    v. Hire and use a third party, as described in this section and accepted by DOSWS, to collect a minimum of four consecutive quarterly influent and

effluent samples for 12 months on each of the 20 Treatment Units. All procedures to collect, transport, and measure samples, with proper chain of custody, must be conducted under the supervision of a faculty member in an appropriate program of an accredited college or university, a licensed professional engineer experienced in the field of sanitary engineering, or by a testing firm acceptable to DOSWS.

vi. Bacterial counts shall be made using Standard Methods 9223, 9221 E, or 9222 D with sufficient dilution to report values up to approximately 200,000 organism/100mL. If adequate and continuous disinfection is provided, then measurement of bacterial counts is not required. If the installation complies with the vertical offset requirements for the dispersal of secondary effluent to the seasonal watertable or other soil wetness feature as specified in the *Regulations*, then disinfection is not required.

2. The Manufacturer will provide a copy of the contract with the third party, which must clearly describe the duties to be performed by both the third party and the Manufacturer. The Manufacturer and third party will provide a Quality Assurance and Quality Control (QA/QC) plan in the contract. The QA/QC plan will include information on the collection, transport and handling of samples and must be satisfactory to DOSWS.

   The contract must specify when sample measurements will be sent to DOSWS and that all persons used to collect, transport, or test samples will be properly trained to perform the corresponding tasks. The contract must be provided at the time this Agreement is completed and must be acceptable to DOSWS.

   i. The third party agreed to is/are **SPOV, LLC**.

   ii. If requested by DOSWS, the Manufacturer agrees that the third party will provide at least 72 hours notice before collecting samples and allow for joint collection with DOSWS, or its designee upon request.

   iii. The Manufacturer agrees to place and assure that at least two inspection and sampling ports are available to allow the third party to adequately sample for influent and effluent. Each inspection and sampling port must be located to accurately characterize the influent and effluent generated.

   iv. The Manufacturer agrees to test and report influent and effluent results as described above for the following constituents (unless specifically waived by DOSWS): BOD_5, TSS, Fecal Coliforms in cfu/100 ml or E.Coli (when disinfection is not provided), Dissolved Oxygen, Temperature, and pH.

Sometimes influent data that reflects the wastewater characteristics produced by the residential dwelling is not practical to collect. In such case, the Manufacturer will report influent from the recirculation tank.

If the influent does reflect the average or normal values for residential wastewater, then DOSWS may require additional testing or eliminate that specific residence from consideration as part of the evaluation.

3. Hire and use a lab certified and accepted by DOSWS to perform BOD_5, TSS, and fecal coliform measurements using the *Standard Methods for the Examination of Water and Wastewater* for influent and effluent, including any requirements set forth by the U.S. Environmental Protection Agency (USEPA). Composite or grab samples for TSS and BOD_5 may be used. Grab samples for fecal coliforms is required. The third party will directly report the results to DOSWS no later than the 15th day following completion of testing for any sample.

    i. The certified lab is/are **Air, Water & Soil**.

4. Maintain an electronic database or spreadsheet of all system installations, with or without variances, and report the database to the Director, DOSWS by the 15th day of March, June, September, and December of each year the evaluation continues. The spreadsheet report will include the following information:

    i. Sample results for influent and effluent.

    ii. Interim observations about the Treatment Unit's performance with respect to the pass/fail criteria.

    iii. Describe the dispersal design and offsets to soil limiting features for each system sampled.

5. Install no more than 30 Treatment Units per calendar year with the variances provided by this interim policy, for a maximum of 90 Treatment Units with the associated variances over the three year evaluation period. An unlimited number of Treatment Units is allowed without the associated variance(s).

6. The pass/fail criteria for effluent will be as follows:

	Log Transformed Upper 99% Confidence Interval Converted Back to Native Units
BOD_5 (mg/l)	Less than or equal to 10 mg/l
TSS (mg/l)	Less than or equal to 10 mg/l
Fecal coliforms (cfu/100ml) or E.Coli	Less than or equal to 2,000 cfu/100ml

In return for the above considerations, DOSWS agrees to maintain a list of Treatment Units installed in Virginia and their sampling results. DOSWS will have three categories under which a Treatment Unit may be listed. The categories are as follows: "Completed testing and passed," "Did not pass/Did not complete testing," and "Evaluation Ongoing." The database and categories will be posted on the Virginia Department of Health's website.

This Agreement is binding upon both parties until new regulations to amend or replace the *Sewage Handling and Disposal Regulations*, 12 VAC 5-610, occurs, or is otherwise made unnecessary. Upon conclusion of the testing and evaluation in accordance with this Agreement, DOSWS will render a case decision regarding whether the Treatment Unit has met the influent and effluent performance expectations.

If the case decision affirms that the Treatment Unit met the pass/fail criteria, then the Manufacturer is no longer required to continue the evaluation. Alternatively, if DOSWS finds the Treatment Unit did not meet the performance standards, then the Manufacturer will have 30 days to challenge the decision before the Manufacturer and Treatment Device are removed from being listed under GMP #147. Without listing, owners of Treatment Units will not have access to the variances permitted by GMP #147. If the Manufacturer cannot continue or decides not to continue the evaluation, the Manufacturer will provide DOSWS with 30 days written notice. DOSWS, in its sole discretion, will decide whether to remove sampling results for the Treatment Unit from its website.

This Agreement may be updated, amended, modified, or replaced upon 30 days written notice of either party or with the consent of both parties. The DOSWS may update, amend, modify, or replace the Agreement on behalf of the Commissioner.

Read, Understood, and Agreed to:

Karen Remley, M.D., M.B.A., F.A.A.P.
State Health Commissioner

Manufacturer

Troy Cormier, VP
HOOT Systems, LLC

Service Providers of Virginia

This agreement is made and entered into as of the Effective Date by and between Service Providers of Virginia (SPOV), LLC and the undersigned customer ("Customer").

WITNESSETH

Customer is GP3 LLC for HOOT located at:

700 Grove Road Midlothian VA 23114

For which SPOV agrees to perform certain services.

1. Definitions:

For purpose of this agreement, the following definitions shall apply:

- **"System Components" shall mean:**
  - The following mechanical components of the System: float sensors, pump, control panel, discharge pump, blower and headworks box.
  - Septic tank, pump tank, conveyance lines, distribution lines or absorption field.
  - UV disinfection, when required.
- **" Services" shall mean:**
  - Collecting samples from a specified number of operating HOOT systems. Sampling includes, but is not limited to, BOD5, TSS, DO, Temperature, and pH.
  - Samples will be collected in accordance with HOOT sampling protocol (attached)
  - Transportation of samples
  - Samples will be delivered to Air, Water & Soil Laboratories on Tuesday, Wednesday or Thursday ONLY. BOD5 and TSS samples will be submitted to the laboratory within 48 hours.

2. Terms of Agreement:

- This agreement shall be for a period of 12 months after the Effective Date, unless otherwise terminated or canceled by either party as provided herein.

3. Performance of Maintenance Services:

- SPOV field representatives shall, at a minimum, possess a license issued by DPOR for Onsite Sewage System Operator-Alternative.
- Samples will include Influent and Effluent. Samples will be kept on ice until custody is turned over to the laboratory.
- Samples will be collected and transported in accordance with QA/QC plan.
- SPOV field representatives will be trained by HOOT representatives on testing protocol specific to HOOT systems.
- During the term hereof, Customer will provide SPOV with access to the System Components.
- Test results will be submitted to Peter M Brooks, copy to HOOT and GP3 LLC direct from the laboratory. Chain of custody copies will be submitted to Peter M Brooks, copy to HOOT and GP3

SPOV

LLC. All procedures to collect transport and measure samples, with proper chain of custody, will be supervised by Peter M Brooks, PE or other licensed professional engineer experienced in the field of sanitary engineering. ~~The PE~~ will directly report the results of any testing to DOSWS no later than the 15th day following completion of testing for any samples.

4. Payment:

- Customer agrees to pay SPOV within 30 days after submission of invoices.

5. Termination:

- Customer may terminate/cancel this agreement with 20 days written notice. SPOV will cease all service without liability to the customer. No refund of prepaid charges will be due.

6. Limitation of Liability:

- In no event shall SPOV be liable to customer for any indirect, special or consequential damages or lost profits, arising out of or related to this agreement or the performance or breach thereof. SPOV's liability hereunder to customer, if any, shall in no event exceed the amount paid hereunder by the customer to SPOV for one (1) year's Services. There are no warranties expressed or implied.

7. General:

- This agreement is the sole agreement between the parties relating to the subject matter hereof.
- This agreement shall be interpreted in accordance with substantive laws of the Commonwealth of Virginia.

Customer: GP3 LLC for HOOT Systems LLC

William Keller
Customer Signature

Accepted on behalf of Service Providers of Virginia, LLC

William Keller
Print Name

11-11-11
Effective Date

Term ___1___ **Year(s)**

Post Office Box 103 * Charles City, Virginia 23030 * (804)-794-9473

Service Providers of Virginia

QA/QC PLAN
SAMPLE COLLECTION

1. Hoot grab sampling protocol will be followed. It is attached.

2. Samples will be collected from the specified systems, locations to be approved by DOSWS, from the influent and effluent ends. Samples will be collected in 1L jars provided by Air, Water& Soil Laboratories. Each system will be tested for BOD5 (SM5410B method) and TSS (EPA 160.2 method). Each sample will require a separate 1L jar (provided by Air, Water, Soil Laboratory) thus there will be:

a) BOD5 sample from the influent side
b) TSS sample from the influent side
c) BOD5 sample from the effluent side
d) TSS sample from the effluent side

3. Samples will be field tested for pH using a Milwaukee pH52 or equivalent. Samples must be tested within fifteen minutes of removal from the HOOT system. Sample results for influent pH and effluent pH will be recorded on a data sheet for each system tested clearly listing the location, date, time and sampler.

4. Samples will be field tested for temperature in centigrade using a Milwaukee pH52 or equivalent. Sample results for influent temperature and effluent temperature will be recorded on a data sheet for each system tested clearly listing the location, date, time and sampler.

5. Samples will be field tested for dissolved oxygen using a Milwaukee MW600 or equivalent. Sample results for effluent dissolved oxygen will be recorded on a data sheet for each system tested clearly listing the location, date, time and sampler.

6. Transportation and Submission to the Laboratory:

a) Samples will be placed on ice during transportation to the lab.
b) Samples will be submitted to the laboratory within 48 hours of collection.
c) Chain of custody must be completed for each location. It is permissible to list multiple samples from the SAME location on the chain of custody form. Chain of custody instructions and a sample form are attached.

7. Result Reporting:

Air Water & Soil Laboratory located at 2109A North Hamilton Street Richmond, VA 23230 (866-358-8318) reports all results electronically. Results will be e-mailed to Peter Brooks, copies to HOOT and GP3 LLC within five days of submission.

Hoot Grab Sampling Protocol for 3rd party sampling

Systems to be sampled must be in proper working order and used within their design permitted range. Only systems found to be maintained and in proper working order should be sampled as a representation of the level to which systems are capable of performing. Technician should observe that no alarms are active, and the blower is functioning properly. If there are questions please call the service provider named on the control panel.

For systems to be properly sampled, the sampling procedure must be strictly followed. We always want to sample from what is called "the end of the pipe" or as effluent is leaving the final chamber. The following is the procedure:

Sampling should occur on Tuesday, Wednesday or Thursday of the week. This is at the request of the sampling laboratory.
When the Technician arrives at the site, the Hoot unit can be located by the two green risers at or above grade. The riser usually furthest away from the house should be the pump chamber where the effluent sample must be taken.
Samples will be taken in 1L plastic bottles supplied by the laboratory. Samples will be tested using SM5410B (BOD) method and EPA 160.2 (TSS) method. Extreme care must be used to prevent cross contamination.

SYSTEMS WITH PUMP

To take an effluent sample you will be required to activate the pump. While in the pump chamber make sure the hose bib is all the way closed. Put the panel into manual pump mode (see installer manual mode 2) and go immediately to the pump chamber. Once the pump has been running long enough to evacuate the standing water in the pump pipe (3-4 seconds), open the hose bib. Let the hose bib run for about 2 seconds and then put your sampling bottle under the hose bib collecting your sample. Once the sample is obtained replace all components into regular operating conditions.

SAMPLING OF INFLUENT

Open the riser that splits the trash trap and the aeration chamber. Break an opening in the crust layer. Use a sludge judge to acquire your sample 6" below the crust layer. If you are not equipped with a sludge judge than submerge your sample bottle through the hole you made in the crust layer and into the liquid of the trash trap. Replace all components into regular operating conditions.

TEMPERATURE and pH

You will be supplied with a Milwaukee pH52, or equivalent, Microprocessor Waterproof pH and temperature meter. This temperature indicating device will record and display the temperature on the LCD screen. Record the temperatures on the data sheet for the system being tested taking care to accurately differentiate between the influent and effluent samples. Proper use is described in detail in the user manual. Strict adherence is required to obtain accurate readings. pH must be performed in the field and will also be recorded on the data sheet for the system being tested. Meters must be cleaned with water between readings.

DISSOLVED OXYGEN

You will be supplied with a Milwaukee MW600 dissolved oxygen meter or equivalent to measure dissolved oxygen. Proper use is described in detail in the user manual. Strict adherence is required to obtain accurate readings. DO will be taken for effluent.

CHAIN OF CUSTODY

Air Water & Soil has printed an Environmental Sampling Field Guide that contains Chain of Custody Instructions. This field guide will be provided to you. The chain of custody is a legal document and strict adherence is mandatory.

2885 Hwy 14 E, Lake Charles, LA 70607
www.hootsystems.com
337-474-2804 Phone

Chain of Custody (COC) Instructions

Fill out company information (name, contact, address, phone/fax #)

Fill out project information (name, site, etc)

PWS # stands for Public Water Supply and is for drinking water samples only. See additional hand-out for more information on Drinking Water.

The sampler must print and sign their name legibly where indicated on the COC.

Standard Turn Around Time is five business days (10 for landfill work). If you need results sooner than that, please call the lab ahead of time so that we can verify whether we will be able to do it in that amount of time as well as prepare the analysts for the incoming samples.

Each location you pull a sample from is considered one sample (no matter how many different analysis are being run on it) and needs to have a name or number to identify it from other locations being sampled. The sample ID must be copied exactly from the container to the COC.

Always record the date and time sampled (in military time), because all analysis have different holding times, some of which are extremely short. See attached for holding times.

Please indicate the number of sample containers used for each sample.

Please indicate the matrix of the sample as well as whether it is a grab or composite.

Matrix Definitions:

Air - Gas sample. May be collected in various media including tedlar bags, sorbent cartridges, and filter cassettes.

Aqueous - A water soluble sample which does not meet the criteria for Drinking Water, Ground Water or Waste Water.

Drinking Water - A sample from a potable water supply whose results and conditions are compliant with the Safe Drinking Water Act and 40 CFR part 143.

Groundwater - A water sample taken from a suface water or underground water source. Generally described as monitoring wells, recovery wells, or other naturally contained source.

Wastewater - A water sample taken from a discharge point whose results and conditions are compliant with the Clean Water Act and 40 CFR part 136.

Soil-Earth. May contain gravel and/or plant matter. Includes most sludges.

Solids - Non soil material to be analyzed by weight. Includes building debris, chemical powders, and sorbent material.

Organic - Non aqueous material generally petroleum based to be analyzed by weight. Includes greases, oils, fuels, solvents, etc.

Soil samples are collected in unpreserved soil jars. We can typically run up to three different analysis from a 4 oz. jar, but if more than three analysis are needed, we will provide a 9 oz. jar for each sample. Water samples are collected in various different containers depending on the analysis being done. We will provide and label these containers for your convenience upon your request. Attached you will find a listing of bottle/preservative requirements for water analysis. Organic or solid matrices such as oil or sludge are usually collected in unpreserved soil jars, but those projects have to be evaluated on a case by case basis.

All samples must be kept below 4 degrees C so please keep on ice.

(over)

When entering analysis, please try to indicate as much information as possible to include the method (most of our analysis can be performed by more than one method). If you have a permit or quote we can refer to, please include a copy and/or make a note on the COC in the comments sections indicating the quote number. If the project requires a Data Pack, please indicate what level data pack is required in the comments section and that will follow 10 business days after the certificate is distributed.

If more than one COC is required for a given project (more than 10 samples), please indicate page numbers in the top right hand corner of the COC. (Ex: page 1 of 3, page 2 of 3, page 3 of 3, etc.)

When relinquishing samples to the laboratory, be sure to sign and date the COC, and whoever receives the samples at AWS will also sign and date before issuing you a copy to take with you for your records.

The COC is a legal document that follows the samples from the sampling event through completion of the final report and invoice. If a correction needs to be made, please put one line through the error and initial (do not use white out).

If you have any questions, please contact the lab and we will assist you further.

AIR WATER & SOIL®
LABORATORIES, INC.
2109A North Hamilton St. Richmond, Virginia 23230
Tel: 804-358-8295 Fax: 804-358-8297
Toll Free:1-866-358-8318 www.awslabs.com

AIR WATER & SOIL LABORATORIES, INC.

2109A NORTH HAMILTON STREET
RICHMOND, VIRGINIA 23230
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

PAGE _____ OF _____

COMPANY NAME:	INVOICE TO:	PROJECT NAME/Quote #:
CONTACT:	INVOICE CONTACT:	SITE NAME:
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #: EMAIL:		Pretreatment Program:
Is sample for compliance reporting? YES NO	Is sample from a chlorinated supply? YES NO	PWS I.D. #:
SAMPLER NAME (PRINT):	SAMPLER SIGNATURE:	**Turn Around Time: Day(s)**

Matrix Codes: WW=Water Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other_____

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)								COMMENTS
1)																			
2)																			
3)																			
4)																			
5)																			
6)																			
7)																			
8)																			
9)																			
10)																			

Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol

PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)

RELINQUISHED: DATE / TIME	RECEIVED: DATE / TIME	QC Data Package	**LAB USE ONLY** **COOLER TEMP _____ °C**
RELINQUISHED: DATE / TIME	RECEIVED: DATE / TIME	Level I ☐	
RELINQUISHED: DATE / TIME	RECEIVED: DATE / TIME	Level II ☐	
		Level III ☐	
		Level IV ☐	